AMENDMENTS TO THE CLAIMS

In the Claims

The following is a marked-up version of the claims with the language that is underlined ("___") being added and the language that contains strikethrough ("——") being deleted:

Claims

1 – 41. (Canceled)

42. (Currently amended) An optical cavity comprising:

a first reflector comprising:

a first layer having a non-concave first surface and a planar second surface; and

a first reflecting stack having planar layers, wherein a planar first surface of the first reflecting stack is juxtaposed with the planar second surface of the first layer; and

a second reflector comprising a second reflecting stack of planar layers, and wherein the first and second reflectors are configured to provide at least one optical path from the second reflector to the first reflector such that light travelling in this optical path traverses the non-concave first surface of the first layer before undergoing reflection back towards the second reflector.

43. (Previously presented) The optical cavity of claim 42, wherein the first layer has an index of refraction that varies as a function of radial distance from an axial center of the first layer.

44. (Previously presented) The optical cavity of claim 42, wherein the non-concave first surface is a convex surface and wherein the first layer has a first index of refraction.

45. (Previously presented) The optical cavity of claim 44, wherein the first layer has a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial distance ρ.

46. (Previously presented) The optical cavity of claim 42, wherein the non-concave first surface is a convex surface and wherein the first layer has an index of refraction that varies as a function of radial distance out from an axial center of the first layer.

47. (Previously presented) The optical cavity of claim 42, wherein the non-concave first surface is a planar surface and wherein the first layer has an index of refraction that varies as a function of radial distance from an axial center of the first layer.

48. (Currently amended) The optical cavity of claim 42, wherein adjacent layers of the first reflecting stack have different indices of refraction.

49. (Currently amended) The optical cavity of claim 48, wherein each of the layers of the first reflecting stack has a quarter-wave optical thickness.

50. (Previously presented) An optical cavity comprising:

a first reflector having a planar first surface and a non-concave second surface;

a second reflector having a planar first surface and a planar second surface; and

a non-reflecting active region between the non-concave second surface of the first reflector and the planar first surface of the second reflector.

51. (Previously presented) The optical cavity of claim 50, wherein the first reflector comprises a material having an index of refraction that varies as a function of radial distance from an axial center of the first reflector.

52. (Currently amended) The optical cavity of claim 50, wherein the first reflector is a multi-layered reflector and the non-concave second surface is a convex surface of a first layer having a first index of refraction.

53. (Previously presented) The optical cavity of claim 52, wherein the first layer has a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial distance ρ.

54. (Currently amended) The optical cavity of claim 50, wherein the first reflector is a multi-layered reflector and the non-concave second surface is a convex surface of a first layer having an index of refraction that varies as a function of radial distance from an axial center of the first layer.

55. (Previously presented) The optical cavity of claim 50, wherein the non-reflecting active region comprises a layer of semiconductor material.

56. (Previously presented) The optical cavity of claim 50, wherein the non-reflecting active region comprises a quantum well.

57. (Currently amended) The optical cavity of claim 50, wherein the first reflector is a multi-layered reflector and the non-concave second surface is a planar surface of a first layer having an index of refraction that varies as a function of radial distance from an axial center of the first layer.

58. (Previously presented) A method for manipulating light in an optical cavity, comprising:

providing a first reflector having a non-concave first surface and a planar second surface;

providing a second reflector having a first and a second planar surface; and

reflecting light between the first reflector and second reflector such that light reflected by the second reflector traverses the non-concave first surface before undergoing reflection at the first reflector.

59. (Previously presented) The method of claim 58, wherein the first reflector comprises a first layer having a thickness, t, that varies as a function of a radial distance ρ from the axial center of the layer, wherein the thickness, t, provides a phase delay, $\Delta\phi$, that emulates a delay in phase between a first light ray L0 and a second light ray L1 reflected off a mirror, the light rays separated from each other by the radial distance ρ.

60. (Previously presented) The method of claim 59, wherein the optical cavity is part of a vertical cavity surface emitting laser.

61. (Previously presented) The method of claim 59, wherein the optical cavity is part of a vertical semiconductor optical filter.